

What is claimed is:

- 1 1. A cementing tool for cementing a casing assembly at a junction of
2 plural wellbores, comprising:
 - 3 a body;
 - 4 an anchoring mechanism adapted to anchor the body axially within
5 the casing assembly; and
 - 6 a flow conduit adapted to channel cement flow to an annular region
7 outside the casing assembly,
 - 8 wherein the anchoring mechanism is adapted to be released to enable
9 retrieval of the cementing tool from the casing assembly.
- 1 2. The cementing tool of claim 1, further comprising a sealing element
2 coupled to an external surface of the body and adapted to effect a fluid seal
3 between the body and the casing assembly.
- 1 3. The cementing tool of claim 2, further comprising another sealing
2 element coupled to the external surface of the body.
- 1 4. The cementing tool of claim 3, further comprising setting members
2 adapted to set the sealing elements.
- 1 5. The cementing tool of claim 4, further comprising ports, each port
2 adapted to communicate fluid pressure from inside the cementing tool to one side
3 of a respective setting member.

1 6. The cementing tool of claim 5, further comprising a shear
2 mechanism adapted to attach the setting member to the body of the cementing
3 tool.

1 7. The cementing tool of claim 1, further comprising flow control
2 device to control fluid flow through the flow conduit.

1 8. The cementing tool of claim 7, wherein the flow control device
2 comprises a sliding sleeve.

1 9. The cementing tool of claim 7, wherein the flow control device
2 comprises a check valve.

1 10. The cementing tool of claim 1, further comprising a first member
2 slidable from a first position to a second position to lock the anchoring
3 mechanism.

1 11. The cementing tool of claim 10, wherein the first member is slidable
2 from the second position to the first position to release the anchoring mechanism.

1 12. The cementing tool of claim 10, further comprising a shear
2 mechanism adapted to temporarily restrain sliding of the first member.

1 13. The cementing tool of claim 1, further comprising a bypass device
2 having a distal end adapted to connect to a guide shoe at an end of the casing
3 assembly.

A B O O S E S S E S C A S I N G

1 14. The cementing tool of claim 13, wherein the bypass device has an
2 inner conduit adapted to isolate cement flow from an internal volume of the casing
3 assembly, the inner conduit of the bypass device being part of the flow conduit.

1 15. The apparatus of claim 14, wherein the one bypass device comprises
2 a plurality of tubes.

1 16. The cementing tool of claim 13, wherein the casing assembly defines
2 plural lateral legs, the cementing tool further comprising a barrier disposed about
3 the bypass device to seal cement from entering the internal volume through one of
4 the lateral legs.

1 17. The cementing tool of claim 1, further comprising an outer sleeve
2 formed of a stretchable material, the outer sleeve adapted to detach from hardened
3 cement outside the cementing tool to enable easy removal of the cementing tool
4 from the hardened cement.

1 18. The cementing tool of claim 1, wherein the body defines an inner
2 bore and one or more radial ports in communication with the inner bore, the
3 cementing tool further comprising a flow control device adapted to control flow
4 through the one or more radial ports.

1 19. The cementing tool of claim 18, wherein the inner bore comprises a
2 lower portion below the one or more radial ports to receive a plug provided ahead
3 of a flow of cement.

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1 20. The cementing tool of claim 1, wherein the casing assembly has a
2 wall separating the plural bores, and wherein the body of the cementing tool is
3 adapted to equalize pressure across the wall.

1 21. The cementing tool of claim 1, wherein the anchoring mechanism
2 comprises a positive feedback locator to indicate that the cementing tool has
3 reached a target depth.

1 22. A method of cementing a casing assembly at a junction of plural
2 wellbores, comprising:
3 lowering a cementing tool to engage inside the casing assembly;
4 pumping cement slurry through the cementing tool to fill an annular
5 region outside the casing assembly;
6 disengaging the cementing tool from the casing assembly; and
7 lifting the cementing tool from the casing assembly.

1 23. The method of claim 22, further comprising providing a landing
2 mechanism on the cementing tool to engage a profile inside the casing assembly.

1 24. The method of claim 23, further comprising setting at least one
2 sealing element to seal the cementing tool against the casing assembly.

1 25. The method of claim 24, wherein disengaging the cementing tool
2 comprises unlocking the landing mechanism and unsetting the sealing element.

1 26. The method of claim 22, further comprising providing a sleeve
2 formed of a stretchable material around an outer surface of the cementing tool.

1 27. The method of claim 26, further comprising detaching the cementing
2 tool from a hardened block of cement by stretching the sleeve to unbond from the
3 hardened block of cement.

1 28. The method of claim 22, further comprising providing a positive
2 feedback indicator on the cementing tool to indicate when the cementing tool is
3 engaged in the casing assembly.

1 29. The method of claim 22, wherein lifting the cementing tool is
2 accomplished without first milling at the junction.

1 30. The method of claim 22, further comprising providing a flow control
2 device in the cementing tool to control the flow of a cement slurry.

1 31. The method of claim 30, wherein providing the flow control device
2 comprises providing one of a check valve and a sleeve valve.

1 32. The method of claim 30, further comprising closing the flow control
2 device to set a sealing element of the cementing tool against an inner surface of
3 the casing assembly.

1 33. The method of claim 32, further comprising opening the flow control
2 device after setting the sealing element,
3 wherein pumping the cement slurry through the cementing tool
4 comprises pumping the cement slurry through the flow control device.

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1 34. A method for cementing a casing assembly comprising a junction
2 assembly and a guide shoe assembly, the junction assembly having an internal
3 volume, the guide shoe assembly having a fluid channel therein, the method
4 comprising:

5 pumping cement down a work string;
6 channeling cement flow from the work string through at least one
7 bypass device extending through the internal volume of the junction assembly and
8 down a lateral branch of the junction assembly into the fluid channel in the guide
9 shoe; and
10 preventing the flow of cement exiting the guide shoe from back
11 filling into the internal volume of the junction assembly.

1 35. The method of claim 34, wherein preventing the flow of cement
2 comprises providing a barrier between one of the lateral branches and the bypass
3 device.

1 36. The method of claim 35, wherein preventing the flow of cement
2 comprises effecting a fluid seal above the junction assembly to trap a fluid in the
3 internal volume of the junction assembly prior to cementing the junction assembly.

1 37. A system comprising:
2 a casing assembly having a junction assembly to complete a junction
3 of plural wellbores,
4 the junction assembly having plural branch legs; and
5 a cementing tool adapted to be releasably engaged in the casing
6 assembly to direct flow of cement into the junction assembly and out into an
7 annular region around the casing assembly.

1 38. The system of claim 37, wherein the cementing tool has an external
2 seal and a member adapted to set the external seal against an inner wall of the
3 casing assembly.

1 39. The system of claim 38, wherein the cementing tool has an
2 anchoring mechanism, and the casing assembly has a landing profile, the
3 anchoring mechanism adapted to engage the landing profile.

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